

AMENDMENTS TO THE CLAIMS

The present listing of the claims replaces all past listings of the claims:

Listing of claims

Claims 1-49. (Canceled).

Claim 50. (Withdrawn) Method for preparing an agent for gene transfer, which method comprises combining

- (i) a nucleic acid construct comprising at least one hormone responsive element (HRE) and a transgene, said at least one HRE being not functionally linked to the transgene, and
- (ii) a hormone-hormone receptor complex.

Claim 51. (Withdrawn) The method of claim 50, wherein the transgene is selected from the group consisting of genes encoding a blood clotting factor, hormone genes, hormone receptor genes, growth factors, enzyme genes, genes encoding cytokines or lymphokines, genes encoding inhibitor substances, genes encoding substances that function as drugs or vaccines, and antisense sequences.

Claim 52. (Withdrawn) The method of claim 51, wherein the transgene is a gene encoding a blood clotting factor and the agent is suitable for treating hemophilia.

Claim 53. (Withdrawn) The method of claim 52, wherein the blood clotting

factor is a human blood clotting factor.

Claim 54. (Withdrawn) The method of claim 50, wherein the nucleic acid construct comprises 1 to 20.

Claim 55. (Withdrawn) The method of claim 50, wherein the at least one HRE is a steroid responsive element.

Claim 56. (Withdrawn) The method of claim 53, wherein the HRE is a progesterone responsive element (PRE) and the blood clotting factor is factor IX.

Claim 57. (Withdrawn) The method of claim 54, wherein the HRE is a PRE and the blood clotting factor is factor VIII.

Claim 58. (Withdrawn) The method of claim 55, wherein the PRE has the double stranded DNA sequence comprised of the DNA sequences of SEQ ID NOs: 3 and 4.

Claim 59. (Withdrawn) The method of claim 50, wherein the construct further comprises functional DNA sequences selected from the group consisting of promoter sequences, enhancer sequences, silencer sequences, origin of replication sequences, integrational sequences, marker genes and switch sequences.

Claim 60. (Withdrawn) The method of claim 59, wherein the construct further comprises a tissue-specific promoter.

Claim 61. (Withdrawn) The method according to claim 50, wherein the hormone-hormone receptor complex is a steroid-steroid receptor complex.

Claim 62. (Withdrawn) The method of claim 61, wherein a first molar ratio of HRE within the nucleic acid construct to hormone receptor is from 1:1 to 1:10, and/or a second molar ratio of hormone to hormone receptor is at least 1000:1.

Claim 63. (Withdrawn) The method of claim 61, wherein the receptor is a progesterone receptor and the steroid is progesterone or a progesterone derivative.

Claim 64. (Withdrawn) The method of claim 63, wherein the progesterone is natural micronized progesterone solubilized in a lipophilic matrix system and/or the progesterone receptor is hPR-A, hPR-B or comprises the nucleotide sequence of 557 to 933 SEQ ID NO:18.

Claim 65. (Withdrawn) A pharmaceutical composition comprising a nucleic acid construct comprising at least one hormone responsive element (HRE) and a transgene and/or a vector comprising said nucleic acid construct, said at least one HRE being coupled to a hormone-hormone receptor complex.

Claim 66. (Withdrawn) The pharmaceutical composition of claim 65, wherein the hormone-hormone receptor complex is a steroid-steroid receptor complex.

Claim 67. (Withdrawn) The pharmaceutical composition of claim 65, wherein the transgene is a gene encoding a blood clotting factor.

Claim 68. (Withdrawn) The pharmaceutical composition of claim 67, wherein the blood clotting factor is factor IX.

Claim 69. (Withdrawn) The pharmaceutical composition of claim 67, wherein the blood clotting factor is factor VIII.

Claim 70. (Withdrawn) The pharmaceutical composition of claim 67, which is suitable for gene transfer.

Claim 71. (Currently amended) A nucleic acid construct comprising at least one hormone responsive element (HRE) and a transgene being a gene encoding a blood clotting factor, ~~wherein one of said at least one HRE's does not regulate the transgene~~
wherein one of said at least one HREs is not functionally linked to the transgene.

Claim 72. (Previously Presented) The nucleic acid construct of claim 71, wherein the blood clotting factor is a human blood clotting factor.

Claim 73. (Previously Presented) A vector comprising the nucleic acid construct of claim 71.

Claim 74. (Previously presented) A transformed cell or transgenic organism comprising the nucleic acid construct of claim 71.

Claim 75. (Previously Presented) A composition of matter comprising

- (i) the nucleic acid construct of claim 71, and/or
- (ii) a vector comprising said nucleic acid construct, said at least one HRE being coupled to a hormone-hormone receptor complex.

Claim 76. (Previously presented) A method for preparing the composition of matter of claim 75, which method comprises admixing the nucleic acid construct with the hormone receptor and the hormone.

Claim 77. (Withdrawn) A method for gene transfer which comprises administering an agent of claim 113 to an organism or to a cellular system.

Claim 78. (Withdrawn) A method for delivering into an organism or into a cellular system a nucleic acid encoding a transgene to be expressed in the cells of the organism or the cells of a cellular system, which method comprises administering an agent of claim 50 113 to the organism or to the cellular system so that a hormone in a

BEST AVAILABLE COPY

composition interacts with a cell membrane and therewith enhances diffusion and transport of the nucleic acid that is coupled to the hormone-hormone receptor complex across the membrane and into the cell.

Claim 79. (Withdrawn) The method of claim 78, wherein a nucleic acid encoding human factor VIII or factor IX is delivered into the cell.

Claim 80. (Withdrawn) A method of treating blood clotting disorders comprising administering a therapeutically effective amount of the pharmaceutical composition of claim 67 to an organism or to a cellular system.

Claim 81. (Withdrawn) A method of treating hemophilia B, comprising administering a therapeutically effective amount of the pharmaceutical composition of claim 68 to an organism or to a cellular system.

Claim 82. (Withdrawn) A method of treating hemophilia A, comprising administering a therapeutically effective amount of the pharmaceutical composition of claim 69 to an organism or to a cellular system.

Claim 83. (Withdrawn) Method for preparing an agent for treating hemophilia, which method comprising combining

(i) a nucleic acid construct comprising at least one hormone responsive element (HRE) and a transgene wherein the transgene is a gene encoding a blood clotting factor

and the at least one HRE is functionally linked to the transgene, and

(ii) a hormone-hormone receptor complex

Claim 84. (Withdrawn) The method of claim 83, wherein the blood clotting factor is a human blood clotting factor.

Claim 85. (Withdrawn) The method of claim 83, wherein the nucleic acid construct comprises 1 to 20.

Claim 86. (Withdrawn) The method of claim 83, wherein the at least one HRE is a steroid responsive element.

Claim 87. (Withdrawn) The method of claim 84, wherein the HRE is a PRE and the blood clotting factor is factor IX.

Claim 88. (Withdrawn) The method of claim 84, wherein the HRE is a PRE and the blood clotting factor is factor VIII.

Claim 89. (Withdrawn) The method of claim 86, wherein the PRE has the double stranded DNA sequence comprised of the DNA sequences of SEQ ID NOs: 3 and 4.

Claim 90. (Withdrawn) The method of claim 83, wherein the construct further comprises functional DNA sequences selected from the group consisting of

promoter sequences, enhancer sequences, silencer sequences, origin of replication sequences, integrational sequences, marker genes and switch sequences.

Claim 91. (Withdrawn) The method of claim 90, wherein the construct further comprises a tissue-specific promoter.

Claim 92. (Withdrawn) The method according to claim 83, wherein the hormone-hormone receptor complex is a steroid-steroid receptor complex.

Claim 93. (Withdrawn) The method of claim 92, wherein a first molar ratio of HRE within the nucleic acid construct to hormone receptor is from 1:1 to 1:10, and/or a second molar ratio of hormone to hormone receptor is at least 1000:1.

Claim 94. (Withdrawn) The method of claim 92, wherein the receptor is a progesterone receptor and the steroid is progesterone or a progesterone derivative.

Claim 95. (Withdrawn) The method of claim 94, wherein the progesterone is natural micronized progesterone solubilized in a lipophilic matrix system and/or the progesterone receptor is hPR-A, hPR-B or comprises the nucleotide sequence of 557 to 933 SEQ ID NO:18.

Claim 96. (Withdrawn) A method for gene transfer which comprises administering the agent as defined in claim 83 to an organism or to a cellular system.

Claim 97. (Withdrawn) A method for delivering into an organism or into a cellular system a nucleic acid encoding a transgene to be expressed in the cells of the organism or the cells of the cellular system, which method comprises administering an agent of claim 114 to the organism or to the cellular system so that a hormone in a composition interacts with a cell membrane and therewith enhances diffusion and transport of the nucleic acid that is coupled to the hormone-hormone receptor complex across the membrane and into the cell.

Claim 98. (Withdrawn) The method of claim 97, wherein a nucleic acid encoding human factor VIII or factor IX is delivered into the cell.

Claim 99. (Withdrawn) The method of claim 53, wherein the human blood clotting factor is selected from the group consisting of factor VIII, factor IX, and von Willebrand Factor (vWF).

Claim 100. (Withdrawn) The method of claim 54, wherein the nucleic acid construct comprises 3 to 10 HRE(s).

Claim 101. (Withdrawn) The method of claim 55, wherein the at least one HRE is a progesterone responsive element (PRE).

Claim 102. (Withdrawn) The method of claim 56, wherein the factor IX has a

nucleotide sequence of 689 to 2071 of SEQ.ID No:1.

Claim 103. (Withdrawn) The method of claim 60, wherein the tissue-specific promoter is an α -antitrypsin promoter.

Claim 104. (Withdrawn) The method of claim 62, wherein the first molar ratio of HRE within the nucleic acid construct to hormone receptor is from 1:2 to 1:5, and/or the second molar ratio of hormone to hormone receptor is at least 10000:1.

Claim 105. (Withdrawn) The pharmaceutical composition of claim 70, which is suitable for treating hemophilia.

Claim 106. (Previously presented) The nucleic acid construct of claim 72, wherein the human blood clotting factor is selected from the group consisting of factor VIII, factor IX, and von Willebrand Factor (vWF).

Claim 107. (Previously presented) The nucleic acid construct of claim 106, wherein the human blood clotting factor is factor VIII.

Claim 108. (Withdrawn) The method of claim 84, wherein the human blood clotting factor is selected from the group consisting of factor VIII, factor IX, and von Willebrand Factor (vWF).

Claim 109. (Withdrawn) The method of claim 85, wherein the nucleic acid construct comprises 3 to 10 HRE(s).

Claim 110. (Withdrawn) The method of claim 86, wherein the at least one HRE is a progesterone responsive element (PRE).

Claim 111. (Withdrawn) The method of claim 87, wherein the factor IX has a nucleotide sequence of 689 to 2071 of SEQ ID No:1.

Claim 112. (Withdrawn) The method of claim 91, wherein the tissue-specific promoter is an α -antitrypsin promoter.

Claim 113. (Withdrawn) The method of claim 93, wherein the first molar ratio of HRE within the nucleic acid construct to hormone receptor is from 1:2 to 1:5, and/or the second molar ratio of hormone to hormone receptor is at least 10000:1.

Claim 114. (Withdrawn) An agent for gene transfer comprising:

- (i) a nucleic acid construct comprising at least one hormone responsive element (HRE) and a transgene, said at least one HRE being not functionally linked to the transgene, and
- (ii) a hormone-hormone receptor complex.

Claim 115. (Withdrawn) An agent for treating hemophilia comprising:

- (i) a nucleic acid construct comprising at least one hormone responsive element (HRE) and a transgene wherein the transgene is a gene encoding a blood clotting factor and the at least one HRE is functionally linked to the transgene, and
- (ii) a hormone-hormone receptor complex.